AMENDMENTS TO THE CLAIMS:

1. (Previously Presented): A method for making a coordinated and complementary set of holograms comprising at least one hologram, to be used in a system for recording and projecting three-dimensional images, wherein said three-dimensional images are magnified uniformly in all dimensions by a magnification factor, said method comprising:

producing a recording reference beam by passing diffuse coherent light from a coherent light source through a first optical array containing a plurality of image focusing means therein; and

producing an object beam by passing diffuse coherent light from the same coherent light source through a second optical array containing a plurality of image focusing means therein of the same number and arrangement as the first optical array,

a) wherein the distances between the centers of the focusing means of the second optical array are a multiple of the distances between the corresponding focusing means of the first optical array, said multiple being equal to the magnification factor; and,

b) wherein the focal lengths of the focusing means of the second optical array are the same multiple of the focal lengths of the corresponding focusing means of the first optical array.

2. (Withdrawn): The method of claim 40 wherein a movable aperture is applied each of said two optical arrays such that the size and shape of the aperture of the first optical defines each elemental image of an unmagnified integral photograph and the size and shape of said aperture of the second optical array defines each elemental image of the integral photograph magnified, said movable aperture being placed between a diffuser plate and each of the image focusing means contained in the optical array and adjacent to the surface of the diffuser plate, said method comprising:

a) positioning said movable aperture in the first optical array so that it coincides with the position of a first of the elemental images of the unmagnified integral photograph; and,

b) positioning said movable aperture in the second optical array so that it coincides with the position of a corresponding first of the elemental images of the magnified integral photograph; and,

c) producing a recording reference beam by passing diffuse coherent light from a coherent light source through the first optical array; and,

d) producing a recording object beam by passing diffuse coherent light from the same coherent light source through the second optical array; and,

e) allowing the reference and object beams to impinge upon a photographic plate for a sufficient time to expose the hologram; and,

f) thereafter, positioning said movable aperture in the first optical array so that it coincides with the positions of the second of the elemental images of the unmagnified integral photograph, the third of the elemental images of the unmagnified integral photograph, the fourth of the elemental images of the unmagnified integral photograph, and so on, each positioning of the aperture comprising a step in the process; and,

g) at the same time, positioning said movable aperture in the second optical array so that it coincides with the positions of the second of the elemental images of the magnified integral photograph, the third of the elemental images of the magnified integral photograph, the fourth of the elemental images of the magnified integral photograph, and so on, each positioning of said aperture comprising a corresponding simultaneous step in the process; and,

h) for each corresponding step, producing the reference and object beams and in the same manner as they were produced for the first elemental position; and,

i) for each corresponding step, exposing the same photographic plate in the same manner as it was in the previous steps.

3. (Withdrawn): The method of claim 2 wherein short bursts of low intensity laser radiation are used as the source of coherent light for exposure of the hologram.

4. (Withdrawn): The method of claim 2 wherein a third movable aperture is placed in contact with the emulsion of the photographic plate that is to become the hologram and wherein a fourth movable aperture is placed on the opposite side of the photographic plate that is to become the hologram, so that both the third and fourth apertures are always positioned coincidentally so as to permit the maximum amount of light to pass through the photographic plate, and wherein the third and fourth apertures move together with the first and second apertures in such a manner as to expose, one at a time, each element of the coordinated and complementary set of holograms.

5. (Withdrawn): The method of claim 2, further comprising reversing each of the elemental images and retaining the original order and arrangement of the elemental images.

6. (Withdrawn): The method of claim 5 wherein the magnification factor is unity.

7. (Withdrawn): The method of claim 5 wherein the order of the elemental images is reversed.

8. (Withdrawn): The method of claim 7 wherein the magnification factor is unity.

9. (Withdrawn): The method of claim 2 for preparing a hologram to be used for elemental image multiplexing in a system for recording and projecting three-dimensional images, wherein the arrangement of the elemental

images of the unmagnified integral photograph is different than the arrangement of the optical arrays.

10. (Withdrawn): The method of claim 9 wherein short bursts of low intensity laser radiation are used as the source of coherent light for exposure of the hologram.
11. (Canceled)
12. (Canceled)
13. (Currently Amended): The method of claim 56[[12]] wherein the reference and object beams both impinge on the same side of the photographic plate.
14. (Currently Amended): The method of claim 56[[12]] wherein the reference and object beams both impinge on opposite sides of the photographic plate.
15. (Currently Amended): The method of claim 56[[12]] wherein the object beams are repositioned optically between successive exposures of the photographic plate so as to produce parallel lines.
16. (Currently Amended): The method of claim 56[[12]] wherein the photographic plate is repositioned mechanically between successive exposures of the photographic plate so as to produce parallel lines.
17. (Currently Amended): The method of claim 56[[12]] wherein the number of monochromatic wavelengths of the plurality is three, that are produced from monochromatic laser beams that can be roughly characterized as red, blue and green, respectively.
18. (Currently Amended): The method of claim 56[[12]] wherein the wavelengths of the plurality~~three monochromatic laser beams~~ are all components of a single laser capable of producing white coherent laser light.
19. (Previously Presented): The method of claim 18 wherein the laser used is a krypton laser.

20. (Previously Presented): The method of claim 18 wherein the reference beam is a spherical wavefront comprised of several or all of the wavelengths produced by the white light laser.

21. (Canceled)

22. (Currently Amended): The method of claim 56[[12]] wherein the hologram is comprised of holograms produced as identical rectangular tiles, and the hologram is produced by assembling the tiles.

23. (Withdrawn): The method of claim 38 for preparing a hologram to be used in a system for recording and projecting three-dimensional images as a high quality holographic imaging system to transfer low aberration and low distortion images, said method comprising the steps of:

a) producing a reference beam by passing coherent light emanating from a laser through a first diffusing screen and further passing the resulting scattered coherent light through a standard projection lens that neither magnifies nor demagnifies; and,

b) producing an object beam by passing coherent light emanating from the same laser through a second diffusing screen and further passing the resulting scattered coherent light through a high quality lens system specially designed to be aberration and distortion free; and,

c) exposing the photographic plate with both reference and object beams to produce the hologram.

24. (Withdrawn): The method of claim 23 wherein the reference and object beam impinge upon opposite sides of a transparent photographic plate to expose the hologram.

25. (Withdrawn): The method of claim 23 wherein the reference and object beam impinge upon the same side of a photographic plate to expose the hologram.

26-27 (Canceled)

28. (Withdrawn): The method of claim 23 wherein the hologram is produced as a reflection hologram.

29. (Withdrawn): The method of claim 23 wherein the hologram is produced as a transmission hologram.

30. (Withdrawn): The method of claim 38 for making a hologram capable of reconstructing a three-dimensional image when used with an optical array containing a plurality of image focusing means therein, said method comprising:

a) producing a reference beam by passing a laser beam through a standard lens; and,

illuminating an integral photograph using the same laser; and,

b) producing an object beam by projecting said laser illuminated image of the integral photograph onto a diffuser plate; and,

c) allowing the reference and object beams to pass through an aperture or slit, and impinge together upon the surface of a photographic film or plate for a sufficient time for photographic exposure.

31. (Withdrawn): The method of claim 30 for making a holographic film strip to be used in a system for recording and projecting three-dimensional images, wherein said film strip consists of successive holograms each hologram being capable of reconstructing a two-dimensional real image of an integral photograph.

32. (Withdrawn): The method of claim 31 for making a holographic film strip wherein the object beam is formed from an image of an integral photograph, such that a three-dimensional image produced by reconstruction of said integral photograph has no vertical parallax, thereby permitting said holographic film strip to be advanced through a projector at constant velocity.

33. (Withdrawn): The method of claim 38 for preparing a second integral photograph to be used in a system for recording and projecting three-dimensional images from a first integral photograph wherein said first integral photograph used together with an optical array comprising a plurality of image focusing means therein reconstructs a three-

dimensional image that is pseudoscopic, and wherein said second integral photograph used together with an optical array comprising a plurality of image focusing means therein reconstructs a three-dimensional image that is orthoscopic, said method comprising:

a) reconstructing a pseudoscopic real image from the first integral photograph using a first optical array comprising a plurality of image focusing means therein; and,

b) photographing the pseudoscopic real image onto a photographic film or plate using an identical second optical array.

34. (Withdrawn): The method of claim 38 for preparing a hologram to be used in a system for recording and projecting three-dimensional images from an integral photograph wherein said integral photograph used together with an optical system comprising a plurality of image focusing means therein reconstructs a three-dimensional image that is pseudoscopic, and wherein said hologram reconstructs a three-dimensional image that is orthoscopic, said method comprising:

a) producing an object beam by illuminating the integral photograph with coherent radiation from a laser and reconstructing a pseudoscopic real image from said integral photograph using an active optical array comprising a plurality of image focusing means therein; and,

b) producing a reference beam using the same laser as was used to illuminate the integral photograph; and

c) exposing a photographic plate or film using the reference and object beams so produced.

35. (Withdrawn): The method of claim 38 for preparing a second hologram to be used in a system for recording and projecting three-dimensional images from a first hologram wherein said first hologram reconstructs a three-dimensional image that is pseudoscopic, and wherein said second hologram reconstructs a three-dimensional image that is orthoscopic, said method comprising:

a) producing an object beam from a pseudoscopic real image reconstruction obtained by illuminating said first hologram with coherent radiation from a laser; and,

b) producing a reference beam from the same laser as was used to illuminate said first hologram; and

c) exposing a photographic plate or film using the reference and object beams so produced.

36. (Previously Presented): The method of claim 1 wherein said coordinated and complementary set of holograms is a plurality of holograms.

37. (Previously Presented): The method of claim 1 wherein said coordinated and complementary set of holograms is a single hologram.

38. (Currently Amended): The method of claim 36 or 37 wherein ~~some of the elements comprising said first and second optical arrays are~~said coordinated and complementary set of holograms~~, and the remaining elements are comprised of~~ comprises other types of optics.

39. (Currently Amended): The method of claims 36, or 37~~, or 38~~ wherein the[[a]] hologram is prepared by exposing portions of a photographic plate incrementally until the entire hologram is produced.

40. (Withdrawn): The method of claim 39 wherein movable apertures are used to expose said portions of said photographic plate incrementally until the entire hologram is produced and are used to protect other portions of said photographic plate from being exposed.

41. (New): A method for making a coordinated and complementary set of holograms comprising at least hologram, to be used in a system for recording and projecting three-dimensional images, wherein,

- said system utilizes a first and second optical array to magnify said three-dimensional images;
- the first optical array contains a plurality of image focusing elements therein;

- the second optical array contains a plurality of image focusing elements therein of the same number and arrangement as the first optical array;
- the image focusing elements of both the first and second optical arrays each have centers that are separated by distances;
- the image focusing elements of both the first and second optical arrays each have focal lengths;
- the distances between the centers of the focusing elements of the second optical array are a multiple of the distances between the corresponding focusing elements of the first optical array, said multiple being equal to the magnification factor;
- the focal lengths of the focusing elements of the second optical array are the same multiple of the focal lengths of the corresponding focusing elements of the first optical array; and,
- said three-dimensional images are magnified uniformly in all dimensions by a magnification factor,

said method comprising:

producing a recording reference beam of coherent light from a coherent light source;

producing an object beam of coherent light from the same coherent light source;

producing at least one focusing element of second optical array by using the reference beam and object beam to create a holographic optical element; and,

repeating the above steps until the desired number of holographic optical focusing elements comprising the second optical array are produced.

42. (New) The method of claim 41 wherein said coordinated and complementary set of holograms comprises other types of optics.

43. (New) The method of claim 41 wherein the second optical array is prepared by exposing portions of a photographic plate incrementally until the entire hologram is produced.

44. (New) The method of claim 43 wherein the portions of the photographic plate that were incrementally exposed are the focusing elements.

45. (New) The method of claim 44 wherein the focusing elements are adjacent to each other.

46. (New) The method of claim 44 wherein each focusing element reconstructs a spherical wavefront.

47. (New) The method of claim 44 wherein each focusing element reconstructs a cylindrical wavefront.

48. (New) The method of claim 47 wherein all of the reconstructed cylindrical wavefronts are parallel to each other.

49. (New) The method of claim 48 wherein the second optical array is produced as a hologram that functions as a front projection holographic screen for reconstructing magnified 3-dimensional images projected from unmagnified integral photographs or holograms.

50. (New) The method of claim 49 all of the reconstructed parallel cylindrical wavefronts focuses to adjacent parallel lines of light located in front of the screen at the respective focal lengths of the cylindrical focusing elements.

51. (New) The method of claim 50 wherein each of the adjacent parallel lines of light extends in length parallel to the entire screen in a first dimension.

52. (New) The method of claim 51 wherein all of the adjacent parallel lines of light form a series of lines that extends parallel to the entire screen in a second dimension.

53. (New) The method of claim 50 wherein the adjacent parallel cylindrical lines of light are of a plurality of different monochromatic wavelengths.

54. (New) The method of claim 53 wherein the adjacent parallel lines of light of the plurality of different monochromatic wavelengths repeat in a series wherein each adjacent line in the series is of a different wavelength.

55. (New) The method of claim 54 wherein the number of monochromatic wavelengths of the plurality is at least three, and the wavelengths are chosen to be complementary so as to produce the appearance of white light.

56. (New) The method of claim 55 further comprising:

a) optically splitting a first monochromatic laser beam into a reference beam and an object beam such that the reference beam has a spherical wavefront that appears to have been generated at a desired projection distance and the object beam has a cylindrical wavefront that appears to have been generated at a distance calculated as the focal length for that wavelength, required to magnify the three-dimensional images by the magnification factor;

b) exposing a transparent photographic plate having an emulsion with the reference beam and the object beam, wherein the reference beam exposes the entire plane of the photographic plate in all directions, and the object beam emanates from a line of light that extends across the entire photographic plate in the linear dimension at the focal length from the surface of the emulsion for that wavelength;

c) repeating steps (a) and (b) above for each succeeding monochromatic wavelength of the plurality so as to produce the series of lines of light spaced apart by a distance equal to the center distance required to magnify the three-dimensional images by the magnification factor; and,

d) repeating steps (a), (b), and (c) above so as to produce additional series across the entire photographic plate such that all of the lines of light are spaced apart by a distance equal to the center distance required to magnify the three-dimensional images by the magnification factor.